

NORTON SOUND GOLOVIN AND MOSES POINT SUBDISTRICTS
CHUM SALMON STOCK STATUS AND ACTION PLAN



A Report to the Alaska Board of Fisheries

By:

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EXECUTIVE SUMMARY

Synopsis

In response to the guidelines established in the *Sustainable Salmon Fisheries Policy* (SSFP) 5 AAC 39.222, the Alaska Board of Fisheries (Board) classified Norton Sound Subdistricts 2 and 3 (Golovin and Moses Point) chum salmon as stocks of concern at the September 2000 work session. The Board classified the Subdistrict 2 and Subdistrict 3 chum salmon stock as a yield concern. The yield concern was based on the low harvest levels since 1995. Action plans were subsequently developed by the department and acted upon by the Board in January 2001. The SSFP directs ADF&G to assess salmon stocks in areas addressed during the 2003-2004 regulatory cycle to identify stocks of concern and in the case of Subdistricts 2 and 3 chum salmon in Norton Sound, reassess the stock of concern status.

Based on definitions provided in SSFP (5 AAC 39.222(f)(42)), the department recommended continuation of the Norton Sound Subdistrict 2 and Subdistrict 3 chum salmon stock as a yield concern at the September 2003 Board work session. During the past four years, low and inconsistent yield of chum salmon has continued in Norton Sound Subdistricts 2 and 3.

Stock Assessment Background

The Norton Sound District is composed of six commercial fishing subdistricts (Figures 1 and 2). Most subdistricts have several rivers where subsistence fishing occurs and, except for Subdistrict 1, there are few restrictions. In Subdistrict 2 most freshwater subsistence fishing occurs in the Niukluk and Fish Rivers and in Subdistrict 3 in the Kwiniuk and Tubutulik Rivers (Figure 3).

The salmon harvests for subsistence uses in Norton Sound have gradually increased since statehood, but have remained stable for last the decade. Commercial harvests have decreased for salmon in many districts the last few years, but escapements have not increased in response to less fishing pressure. Overall in many areas a number of salmon runs have been lower in recent years. Most of the decrease in harvests is due to weak runs, although low prices resulting in less fishing effort, and in a couple subdistricts the lack of a market for chum salmon has also impacted harvest.

In Subdistrict 2, the department has an aerial survey goal established for the Fish and Niukluk Rivers and Boston Creek combined, but no goal based on the Niukluk River tower has been established. However, in the last five years a combination of poor weather and airplane availability has resulted in no acceptable surveys for all three river systems combined. The Niukluk River tower escapement has shown a decreasing trend since it was established in 1995 and 2003 had the lowest escapement (Figure 4).

Subsistence salmon harvests in the last five years, in Subdistrict 2, have usually been double in even-numbered years compared to odd-numbered years, as fishers take advantage of the greater returns of pinks in the even-numbered years. However, there has been little interest by buyers in purchasing pink salmon and in some years no market for chum salmon. In the last five years, there were some commercial salmon harvests, but a combination of no market and poor chum

salmon runs has resulted in no commercial harvest the last two years (Table 1, Figure 5). Likewise in Subdistrict 3, the subsistence salmon harvests have usually been double in even-numbered years (Table 2), because of the greater abundance of pink salmon. Also similar to Subdistrict 2 commercial fisheries, there has been little interest by buyers in purchasing pink salmon and in some years chum salmon also.

At the January 2001 Board of Fisheries meeting the Board established optimal escapement goal ranges for chum salmon on two rivers in Subdistrict 3: the Kwiniuk River (1,500 – 23,000) and the Tubutulik River (9,200 – 18,400). The Kwiniuk River has a counting tower project and the escapement goal has been reached in four of the last five recent years (Figure 6). There is no escapement counting project on the Tubutulik River and in the last five years no acceptable aerial surveys have been flown to determine if the escapement goal range has been reached. Overall, based on escapement and harvest data, it appears that chum salmon runs have been much lower in the 1990s and 2000s than in the 1980s (Figure 6 and 7).

In Subdistrict 2 the chum salmon harvest in the last five years has been very minimal. In most years this has been due to a lack of market. However, in this same period of time the chum salmon escapement past the Niukluk River counting tower has continued to decrease when compared to the escapement numbers in the mid-1990s (Figure 4). This past season the chum run was poor and subsistence restrictions were instituted in Subdistrict 2. Since the Board classified Subdistricts 2 and 3 as yield concern, there has been commercial chum salmon fishing in only one of the last three years. In only one of the past five years was there a commercial harvest of over one thousand chum salmon. Previous to being classified as a yield concern both subdistricts had decreasing harvests of chum salmon, but escapements were also decreasing. In the 2000s there were some years where commercial fishing on chum salmon could have occurred, but there was no market. In 2000, the fishery targeted pink salmon. In 2001, although directed chum salmon commercial periods were allowed in both subdistricts, there were a limited number of permit holders interested in fishing. Although escapements were well above the threshold for commercial fishing in 2002, the buyer was unable to purchase salmon due to tendering problems. The chum salmon run in 2003 was very poor and no commercial fishing was allowed.

STOCK OF CONCERN RECOMMENDATION

Based on the definitions provided in the sustainable salmon policy of 5 AAC 39.222(f) (42), the department recommends continuation of the Norton Sound Subdistricts 2 and 3 chum salmon stock as a yield concern because of the continued well below average and inconsistent yield of chum salmon.

Outlook

The 2004 chum salmon run in Norton Sound Subdistricts 2 and 3 should be similar to runs in recent years when commercial fishing was allowed, but harvests will be well below average. However, information from Bering Sea studies (BASIS) and trawl bycatch information indicates a higher abundance of all salmon species than last year. Depending on the origin of these salmon, the 2004 salmon runs may be better than expected. Even with a strong chum salmon run, actual harvest levels may be more dependent on the commercial effort as few permit holders may be

interested in fishing for chum salmon because of the low prices. Also, a number of salmon permit holders are now permit holders in the crab fishery, which takes place at the same time as the chum salmon fishery. As crab prices are much higher than chum salmon prices, there is little interest in fishing for the latter.

Alaska Board of Fisheries Action

In response to the guidelines established in the Sustainable Salmon Fisheries Policy, the Alaska Board of Fisheries, during the January 12–19, 2004 regulatory meeting, is anticipated to continue the stock of concern classification for the Norton Sound Subdistricts 2 and 3 chum salmon stock as a yield concern.

ESCAPEMENT GOAL EVALUATION

The department has undertaken a review of escapement goals for several Norton Sound salmon stocks where long-term escapement, catch, and age composition data exist that enable the development of biological escapement goals (BEG) or sustainable escapement goals (SEG) based on analysis of production consistent with the escapement goal policy. Escapement goals developed in 2000, were reviewed by the department for this Board cycle with additional data. A separate report details the escapement goal review for the AYK Region. In Subdistrict 2, the department has established an aerial survey sustainable escapement goal (SEG) for the Fish and Niukluk Rivers and Boston Creek combined, but no escapement goal has yet been established for Niukluk River tower. In Subdistrict 3, BEGs were established for the Tubutulik and Kwiniuk rivers in 2001. Aerial surveys are used to determine if the Tubutulik River goal is reached. A counting tower project is used to estimate chum salmon escapement in Kwiniuk River. In January 2001 the Board of Fisheries established optimal escapement goal ranges for the Tubutulik and Kwiniuk rivers by increasing the department recommended BEGs by 15%. Utilizing additional data since the escapement goals were established the department recommends no change to the existing OEGs.

List of current and proposed goals for Golovin and Moses Point chum stocks

Stream	Current Goal		Proposed Goal
Fish/Niukluk/Boston River Aerial	23,200-46,400	SEG	Same
Kwiniuk River Tower	10,000-20,000	BEG	Same
Kwiniuk River Tower	11,500-23,000	OEG	Same
Tubutulik River Aerial	8,000-16,000	BEG	Same
Tubutulik River Aerial	9,200-18,400	OEG	Same

MANAGEMENT ACTION PLAN OPTIONS FOR ADDRESSING STOCKS OF CONCERN AS OUTLINED IN THE SUSTAINABLE FISHERIES POLICY

Norton Sound Subdistricts 2 and 3 Chum Salmon Management Plan Review/Development

Current Stock Status

In response to the guidelines established in the Sustainable Salmon Fisheries Policy (5 AAC 39.222), the department recommended the continuation of Subdistricts 2 and 3 chum salmon stock as a yield concern at the October 2003 Board work session. The Board of Fisheries, after reviewing stock status information and public input during the January 2004 regulatory meeting, is anticipated to continue the stock of concern classification of Subdistricts 2 and 3 chum salmon stock as a yield concern. This determination was based on the inability, despite the use of specific management measures, to maintain expected yields, or harvestable surpluses, above a stock's escapement needs during the last five years.

C&T Use Finding

The Board of Fisheries has made a positive finding for Customary and Traditional Use to be 96,000 to 160,000 for all salmon in the Norton Sound-Port Clarence Districts. Because subsistence fishing restrictions targeting the chum salmon stocks has only occurred once (in 2003) in the last five years in Subdistricts 2 and 3 and the Department is not anticipating the need for restrictions, as it is believed C&T findings specific to chum salmon is not necessary at this time.

Habitat Factors Adversely Affecting Chum Stocks

Subdistrict 2

The Norton Sound/Bering Strait Regional Comprehensive Salmon Plan 1996 – 2010 briefly mentions that the population of Council, on the Niukluk River was 10,000 people during the Gold Rush (page 45). Damage to fish habitat would have occurred 50 to 100 years ago and is not thought by area staff to be the limiting factor now in chum salmon production. Available spawning habitat appears to be more than adequate for the numbers of fish returning. The extent to which mining reduced the available spawning and rearing habitat is not known. There is occasional small-scale mining activity on Ophir Creek, which is not new known for chum salmon production. Oral history indicates Ophir Creek used to be predominately a chum salmon producer. Historical dredging left numerous dredge ponds. Beaver activity has intensified morphological changes in the creek. The system primarily produces coho salmon now. The increasing presence of beavers appears to be a common agent of habitat change. Likely there are others with very small impacts that could add up or indicate a trend in changing environment. The Casadepaga River has both small-scale mining and significant chum salmon production.

Subdistrict 3

Several years ago there was a perched culvert on Iron Creek on the Moses Point to Elim Road that was a barrier to fish passage (pink, chum and coho salmon) at all but high tidal stages. Local residents had manually transported spawning stocks around the culvert in some years. The culvert was initially installed by the Bureau of Indian Affairs (BIA) and a retrofit has now provided easier fish passage. Beaver dams are becoming more prevalent on Iron Creek and this stream may be transformed from a chum producer to a coho producer.

Projects Needed:

A survey of the loss of chum salmon spawning and rearing habitat due to mining in the Niukluk River drainage and an assessment of the feasibility and cost of restoration.

Do New Or Expanding Fisheries On This Stock Exist?

There are no new or expanding fisheries on this stock.

Existing Management Plan

5 AAC 04.390. SUBDISTRICTS 2 AND 3 OF THE NORTON SOUND DISTRICT SALMON MANAGEMENT PLAN.

ACTION PLAN DEVELOPMENT

Norton Sound Subdistricts 2 and 3 Chum Salmon Action Plan Goal

Reduce fishing mortality in order to meet spawning escapement goals, to provide for subsistence levels within the ANS range, and to reestablish historical range of harvest levels by other users.

Review of Management Action Plan

Regulation Changes Adopted in January 2001

In January 2001, after review of the management action plan options addressing this stock of concern, the Board adopted the following plan:

5 AAC 04.390. SUBDISTRICTS 2 AND 3 OF THE NORTON SOUND DISTRICT SALMON MANAGEMENT PLAN (a) The purpose of this management plan is to provide the department with management guidelines for the sustained yield of salmon stocks in Subdistricts 2 and 3 in the Norton Sound District. The department shall manage, to the extent practicable, the commercial, sport, subsistence, and personal use fisheries in Subdistricts 2 and 3 to achieve escapement goals.

(b) The department shall manage salmon fisheries in the Subdistricts 2 and 3 as follows:

(1) in the commercial chum salmon fishery,

(A) the department shall manage the fisheries to achieve the following optimal escapement goals ranges:

(i) Kwiniuk River: 11,500 - 23,000 chum salmon; and

(ii) Tubutulik River: 9,200 - 18,400 chum salmon;

(B) the chum salmon harvest may not exceed 15 000 fish before the departments mid-July run assessment in Subdistrict 2;

(C) the fishery may occur only if the department projects that chum salmon escapement goals will be achieved and the harvestable surplus will more than meet subsistence needs;

(2) in the commercial pink salmon fishery, the fishery may occur only if subsistence needs are expected to be met and chum salmon escapement goal is achieved;

(3) in the commercial coho salmon fishery, the fishery may occur only when the chum salmon escapement goals for the Norton Sound District index rivers specified in 5 AAC 04.358 are achieved or when the department determines that further restrictions would have no impact on achieving chum salmon escapement goals;

(4) the commissioner may not place restrictions on subsistence fishing for chum salmon by emergency order, unless all directed chum salmon commercial fishing has been closed and sport fishing has been appropriately restricted in the subdistrict as provided in 5 AAC 01.180 - 5 AAC 01.184.

The department was provided the authority to establish subsistence gillnet mesh size restriction of 4 and 1/2 inch or less by emergency order when necessary to conserve chum salmon in Subdistricts 1, 2, and 3.

The Board adopted subsistence hook and line (rod and reel) as a lawful gear for all species in northern Norton Sound and southern Kotzebue Sound. Sport Fishing Bag Limits and Methods and Means restrictions were adopted except when a subsistence fishing permit is required, then the catch limits specified in the subsistence fishing permit will apply, except when fishing through the ice.

Management Review

Historical management actions in Subdistricts 2 and 3 are listed in Table 3. Management strategies employed based on the management action plan adopted by the Board allowed for commercial chum salmon fishing in 2001. The lower escapement goal range for Kwiniuk River allowed the department to determine earlier in the season that the goal would be reached and therefore allow commercial chum salmon fishing. There was limited fishing effort in both subdistricts. In 2002, the sole buyer was unable to purchase fish because of mechanical problems with tenders. In the Golovin Subdistrict the 2002 chum salmon run was poor compared to the runs in 1980s and 1990s. However, in the Moses Point Subdistrict the 2002 chum run was the second best since the 1980s. In 2003, the chum run was poor to both subdistricts and no commercial fishing was allowed. Furthermore, the department closed subsistence fishing for chum salmon for two weeks in the Golovin Subdistrict. The escapement past the Niukluk River tower was the lowest since project was initiated in 1995.

ACTION PLAN ALTERNATIVES

ACTION 1. Require subsistence fishing permits in Subdistricts 2 and 3.

Objective

Currently subsistence permits are required in Subdistrict 1, and the Pilgrim River, in the Port Clarence District, which can be accessed by road from Nome. The purpose of requiring permits is to collect accurate subsistence harvest information particularly in an area where potential harvests are going undocumented. In particular, Nome residents can access the Niukluk River, in Subdistrict 2, by road from Nome and then travel downstream to access the Fish River. The Nome-Council road intersects the Niukluk River approximately 10 miles upstream of the counting tower and harvests by Nome and Council residents are unknown. The permit data will be used to determine more accurately subsistence harvests, harvest timing, and participation in this area. The permit will provide documentation of fish harvested by species by day.

Specific action recommended to implement the objective

Require subsistence households to obtain a subsistence permit prior to harvesting salmon. Permits can be requested via mail, e-mail, in-person, or by phone (toll-free).

Subsistence issues/considerations

The recommended action is consistent with state subsistence law requirements.

Cost/Benefit Analysis

Permits are issued at no cost to the recipient. The recipient will need to sacrifice some time to get a permit, record the harvests, and return the permit. A more accurate assessment of subsistence harvests in an area of exploitation where harvests have not been recorded by residents outside of the year-round villages.

Performance measures

A measure of performance would be the reporting success of subsistence users. Seasonal projects are in place on the Fish, Niukluk and Kwiniuk Rivers to issue and receive permits.

BOARD OF FISHERIES REGULATORY PROPOSALS ADDRESSING NORTON SOUND SUBDISTRICTS 2 AND 3 CHUM SALMON STOCK OF CONCERN

- Expand area requiring subsistence fishing permits - proposal numbers: 120 and 121.

RESEARCH PLAN

Norton Sound Initiative and AYK Sustainable Salmon Initiative

A Norton Sound Research and Restoration Initiative (NSR&RI) Steering Committee has been formed that, through the associated Scientific Technical Committee (STC) is identifying and prioritizing research needs in response to the low chum salmon run in 1999. Through this

initiative, native organizations, private industry, non-profit organizations, state and federal agencies have joined together to form an innovation partnership to cooperatively address salmon research and restoration needs. The Arctic-Yukon-Kuskokwim Sustainable Salmon Initiative (AYK SSI) was formed after the NSR&RI and is similar in organization, but encompasses the Yukon and Kuskokwim areas, in addition to Norton Sound.

The NSR&RI has several projects occurring in Norton Sound. There are three projects in Subdistricts 2 and 3 that receive funding from the NR&RSI. The escapement projects on the Niukluk and Kwiniuk Rivers receive funding to sample the chum salmon for age, sex and length (ASL) data. The data help managers determine age class return strength, which can provide for better forecasts. Another project in Subdistrict 2 is using radio telemetry to track chum salmon tagged in the Fish River several miles downstream of the confluence with the Niukluk River. The telemetry project determines the percentage of chums that spawn in the Niukluk River drainage versus the Fish River drainage (Todd, *in prep*). This information may ultimately be used to establish an escapement goal for the Niukluk River that will be an index of the entire Fish River drainage. Some research projects, although outside of Subdistricts 2 and 3 have provided data that can be useful throughout Norton Sound. One project has shown the outmigration timing of juvenile salmon in Subdistrict 1 was in late July (Nemeth, et. al., 2003) as opposed to a belief that outmigration occurred mainly in late June.

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Table 1. Commercial and subsistence salmon catches by species, by year, in the Golovin Subdistrict, Norton Sound, 1962-2003.

GOLOVIN (SUBDISTRICT 2)																		
Year	Commercial						Subsistence						Combined					
	Chinook	Sockeye	Coho	Pink	Chum	Total	Chinook	Sockeye	Coho	Pink	Chum	Total	Chinook	Sockeye	Coho	Pink	Chum	Total
1962	45	11	264	10,276	68,720	79,316	-	-	-	-	-	-	45	11	264	10,276	68,720	79,316
1963	40	40	-	19,677	49,850	69,607	-	-	118	5,702	9,319	15,139	40	40	118	25,379	59,169	84,746
1964	27	40	3	7,236	58,301	65,607	-	-	-	-	-	-	27	40	3	7,236	58,301	65,607
1965	-	-	-	-	-	-	2	-	49	1,523	3,847	5,421	2	-	49	1,523	3,847	5,421
1966	17	14	584	4,665	29,791	35,071	4	-	176	1,573	3,520	5,273	21	14	760	6,238	33,311	40,344
1967	10	-	747	5,790	31,193	37,740	3	-	185	2,774	4,803	7,765	13	-	932	8,564	35,996	45,505
1968	12	-	205	18,428	10,011	28,656	4	-	181	4,955	1,744	6,884	16	-	386	23,383	11,755	35,540
1969	28	-	1,224	23,208	20,949	45,409	2	-	190	2,760	2,514	5,466	30	-	1,414	25,968	23,463	50,875
1970	13	-	3	18,721	20,566	39,303	4	-	353	2,046	2,614	5,017	17	-	356	20,767	23,180	44,320
1971	37	-	197	2,735	33,824	36,793	7	-	191	1,544	1,936	3,678	44	-	388	4,279	35,760	40,471
1972	36	-	20	6,562	27,097	33,715	4	-	62	1,735	2,028	3,829	40	-	82	8,297	29,125	37,544
1973	70	-	183	14,145	41,689	56,087	1	-	48	9	74	132	71	-	231	14,154	41,763	56,219
1974	30	-	3	28,340	30,173	58,546	3	-	-	967	205	1,175	33	-	3	29,307	30,378	59,721
1975	17	-	206	10,770	41,761	52,754	-	-	1	2,011	2,025	4,037	17	-	207	12,781	43,786	56,791
1976	12	-	1,311	24,051	30,219	55,593	-	-	-	1,995	1,128	3,123	12	-	1,311	26,046	31,347	58,716
1977	26	-	426	7,928	53,912	62,292	3	-	80	703	2,915	3,701	29	-	506	8,631	56,827	65,993
1978	22	-	94	72,033	41,462	113,611	1	-	-	2,470	1,061	3,532	23	-	94	74,503	42,523	117,143
1979	75	49	1,606	45,948	30,201	77,879	-	-	845	2,546	2,840	6,231	75	49	2,451	48,494	33,041	84,110
1980	36	36	328	10,774	52,609	63,783	12	-	692	10,727	4,057	15,488	48	36	1,020	21,501	56,666	79,271
1981	23	5	13	49,755	58,323	108,119	8	-	1,520	5,158	5,543	12,229	31	5	1,533	54,913	63,866	120,348
1982	78	5	4,281	39,510	51,970	95,844	7	-	1,289	4,752	1,868	7,916	85	5	5,570	44,262	53,838	103,760
1983	52	10	295	17,414	48,283	66,054	-	-	-	-	-	- ^c	-	-	-	-	-	-
1984	31	-	2,462	88,588	54,153	145,234	-	-	-	-	-	- ^c	-	-	-	-	-	-
1985	193	113	1,196	3,019	55,781	60,302	12	2	430	1,904	9,577	11,925 ^c	205	115	1,626	4,923	65,358	72,227

-Continued-

Table 1. Commercial and subsistence salmon catches by species, by year in the Golovin Subdistrict, Norton Sound, 1986-2003.

(page 1 of 2)

GOLOVIN (SUBDISTRICT 2)																		
Year	Commercial						Subsistence						Combined					
	Chinook	Sockeye	Coho	Pink	Chum	Total	Chinook	Sockeye	Coho	Pink	Chum	Total	Chinook	Sockeye	Coho	Pink	Chum	Total
1986	81	8	958	25,425	69,725	96,197	-	-	-	-	-	- ^c	-	-	-	-	-	-
1987	166	51	2,203	1,579	44,334	48,333	-	-	-	-	-	- ^c	-	-	-	-	-	-
1988	108	921	2,149	31,559	33,348	68,085	-	-	-	-	-	- ^c	-	-	-	-	-	-
1989	0	0	0	0	0	0	-	-	-	-	-	- ^c	-	-	-	-	-	-
1990	52	21	0	0	15,993	16,066	-	-	-	-	-	- ^c	-	-	-	-	-	-
1991	49	1	0	0	14,839	14,889	-	-	-	-	-	- ^c	-	-	-	-	-	-
1992	6	9	2,085	0	1,002	3,102	-	-	-	-	-	- ^c	-	-	-	-	-	-
1993	1	4	2	8,480	2,803	11,290	-	-	-	-	-	- ^c	-	-	-	-	-	-
1994	0	0	3,424	0	111	3,535	253	168	733	8,410	1,337	10,901 ^d	253	168	4,157	8,410	1,448	14,436
1995	0	0	1,616	4,296	1,987	7,899	165	34	1,649	7,818	10,373	20,039 ^d	165	34	3,265	12,114	12,360	27,938
1996	0	0	638	0	0	638	86	134	3,014	17,399	2,867	23,500 ^d	86	134	3,652	17,399	2,867	24,138
1997	19	2	102	20	8,003	8,146	138	427	555	4,570	4,891	10,581 ^d	157	429	657	4,590	12,894	18,727
1998	1	0	3	106,761	723	107,488	184	37	1,292	13,340	1,893	16,747 ^d	185	37	1,295	120,101	2,616	124,235
1999	0	0	0	0	0	0	60	48	1,234	469	3,656	5,467 ^d	60	48	1,234	469	3,656	5,467
2000	0	0	1,645	17,408	164	19,217	169	18	2,335	10,906	1,155	14,583 ^d	169	18	3,980	28,314	1,319	33,800
2001	0	43	30	0	7,094	7,167	89	72	880	1,665	3,291	5,997 ^d	89	115	910	1,665	10,385	13,164
2002	0	0	0	0	0	0	69	66	1,640	14,430	1,882	18,087 ^d	69	66	1,640	14,430	1,882	18,087
2003	0	0	0	0	0	0												
5-year avg. ^a	0	9	336	24,834	1,596	26,774	114	48	1,476	8,162	2,375	12,176	114	57	1,812	32,996	3,972	38,951
10-year avg. ^b	2	5	746	13,697	2,089	16,538												

^a 1998-2002^b 1993-2002^c Subsistence survey not conducted.^d Harvest estimated from Div. of Subsistence survey.

Table 2. Commercial and subsistence salmon catches by species, by year, in Moses Point Subdistrict, Norton Sound District, 1962-2003.

MOSES POINT (SUBDISTRICT 3)																		
Commercial							Subsistence						Combined					
Year	Chinook	Sockeye	Coho	Pink	Chum	Total	Chinook	Sockeye	Coho	Pink	Chum	Total	Chinook	Sockeye	Coho	Pink	Chum	Total
1962	27	-	-	11,100	50,683	61,810	-	-	-	-	-	-	27	-	-	11,100	50,683	61,810
1963	15	-	-	2,549	46,274	48,838	5	-	-	5,808	8,316	14,129	20	-	-	8,357	54,590	62,967
1964	32	3	-	3,372	28,568	31,975	-	-	-	63	348	411	32	3	0	3,435	28,916	32,386
1965	-	-	-	-	-	-	16	-	72	1,325	9,857	11,270	16	-	72	1,325	9,857	11,270
1966	17	-	-	2,745	24,741	27,503	14	-	250	2,511	5,409	8,184	31	0	250	5,256	30,150	35,687
1967	-	-	-	-	-	-	39	-	116	1,322	9,913	11,390	39	-	116	1,322	9,913	11,390
1968	12	-	1	9,012	17,908	26,933	2	-	80	6,135	2,527	8,744	14	-	81	15,147	20,435	35,677
1969	29	-	-	11,807	26,594	38,430	9	-	109	1,790	1,303	3,211	38	-	109	13,597	27,897	41,641
1970	39	-	-	13,052	29,726	42,817	16	-	160	4,661	6,960	11,797	55	-	160	17,713	36,686	54,614
1971	95	-	4	922	43,831	44,852	16	-	271	1,046	2,227	3,560	111	-	275	1,968	46,058	48,412
1972	190	-	11	5,866	30,919	36,986	44	-	108	1,579	2,070	3,801	234	-	119	7,445	32,989	40,787
1973	134	-	-	10,603	31,389	42,126	2	-	-	-	298	300	136	-	-	10,603	31,687	42,426
1974	198	-	9	12,821	55,276	68,304	3	-	-	2,382	1,723	4,108	201	-	9	15,203	56,999	72,412
1975	16	-	-	4,407	46,699	51,122	2	-	6	1,280	508	1,796	18	-	6	5,687	47,207	52,918
1976	24	-	232	5,072	10,890	16,218	22	-	-	5,016	1,548	6,586	46	-	232	10,088	12,438	22,804
1977	96	-	6	9,443	47,455	57,000	22	-	225	1,145	1,170	2,562	118	-	231	10,588	48,625	59,562
1978	444	-	244	39,694	44,595	84,977	38	-	407	1,995	1,229	3,669	482	-	651	41,689	45,824	88,646
1979	1,035	-	177	40,811	37,123	79,146	16	-	890	6,078	1,195	8,179	1,051	-	1,067	46,889	38,318	87,325
1980	502	-	-	1,435	14,755	16,692	131	-	229	4,232	1,393	5,985	633	-	229	5,667	16,148	22,677
1981	198	-	5	26,417	29,325	55,945	32	-	2,345	6,530	2,819	11,726	230	-	2,350	32,947	32,144	67,671
1982	253	-	318	9,849	40,090	50,450	1	-	1,895	3,785	3,537	9,159	254	-	3,153	13,634	43,587	50,609
1983	254	-	-	17,027	65,776	83,057	-	-	-	-	-	- ^c	-	-	-	-	-	-
1984	-	-	5,959	28,035	9,477	43,471	-	-	-	-	-	- ^c	-	-	-	-	-	-
1985	816	32	1,803	559	24,466	27,676	67	-	1,389	1,212	947	3,615 ^c	883	32	3,192	1,771	25,413	31,291

-Continued-

Table 2. Commercial and subsistence salmon catches by species, by year, in Moses Point Subdistrict, Puget Sound District, 1962-2003.

(page 2 of 2)

MOSES POINT (SUBDISTRICT 3)

Year	Commercial						Subsistence						Combined					
	Chinook	Sockeye	Coho	Pink	Chum	Total	Chinook	Sockeye	Coho	Pink	Chum	Total	Chinook	Sockeye	Coho	Pink	Chum	Total
1986	600	41	5,874	15,795	20,668	42,978	-	-	-	-	-	- ^c	-	-	-	-	-	-
1987	907	15	64	568	17,278	18,832	-	-	-	-	-	- ^c	-	-	-	-	-	-
1988	663	93	3,974	13,703	18,585	37,018	-	-	-	-	-	- ^c	-	-	-	-	-	-
1989	52	0	0	0	157	209	-	-	-	-	-	- ^c	-	-	-	-	-	-
1990	202	0	0	501	3,723	4,426	-	-	-	-	-	- ^c	-	-	-	-	-	-
1991	161	0	0	0	804	965	312	-	2,153	3,555	2,660	8,680 ^d	473	-	2,153	3,555	3,464	9,645
1992	0	0	3,531	0	6	3,537	100	-	1,281	6,152	1,260	8,793 ^d	100	-	4,812	6,152	1,266	12,330
1993	3	0	4,065	0	167	4,235	368	-	1,217	1,726	1,635	4,946 ^d	371	-	5,282	1,726	1,802	9,181
1994	0	0	5,345	0	414	5,759	322	104	1,180	9,345	3,476	14,427 ^d	322	104	6,525	9,345	3,890	20,186
1995	4	44	3,742	2,962	1,171	7,923	284	17	1,353	2,046	3,774	7,474 ^d	288	61	5,095	5,008	4,945	15,397
1996	0	0	1,915	68,609	0	70,524	417	52	1,720	9,442	2,319	13,951 ^d	417	52	3,635	78,051	2,319	84,475
1997	844	0	1,409	0	2,683	4,936	619	50	1,213	1,314	2,064	5,261 ^d	1,463	50	2,622	1,314	4,747	10,197
1998	105	0	1,462	145,669	2,311	149,547	414	49	1,831	6,891	1,376	10,561 ^d	519	49	3,293	152,560	3,687	160,108
1999	0	0	0	0	0	0	424	13	975	1,564	744	3,720 ^d	424	13	975	1,564	744	3,720
2000	10	0	5,182	46,369	535	52,096	248	46	1,429	5,983	1,173	8,879 ^d	258	46	6,611	52,352	1,708	60,975
2001	7	0	1,696	0	681	2,384	427	70	1,352	1,390	898	4,137 ^d	434	70	3,048	1,390	1,579	6,521
2002	0	0	0	0	0	0	565	14	1,801	8,345	1,451	12,176 ^d	565	14	1,801	8,345	1,451	12,176
2003	0	0	0	0	0	0												
5-year avg. ^a	24	0	1,668	38,408	705	40,805	416	38	1,478	4,835	1,128	7,895	440	38	3,146	43,242	1,834	48,700
10-year avg. ^b	97	4	2,482	26,361	796	29,740	409	46	1,407	4,805	1,891	8,553	506	51	3,889	31,166	2,687	38,294

^a 1998-2002^b 1993-2002^c Subsistence survey not conducted.^d Harvest estimated from Div. of Subsistence survey.

Table 3. Golovin and Moses Point Subdistrict Management Actions.

- 1961 -District-wide fishing schedule standard two 48 hour periods per week.
-Commercial fishing allowed in marine waters only.
-100 fathoms maximum length allowable gear.
- 1962 Formation of six Management Subdistricts (S.D.).
- 1969 Beach seines allowed in Golovin S.D. as commercial gear for pink salmon by E.R.
- 1977 Kwiniuk River escapement goal of 20,000 chum salmon established due to low returns in 1975 and 1976.
- 1979 Kwiniuk River escapement goal of 25,000 chum salmon established due to low returns in 1975 and 1976 and rebuild the stock.
- 1980 -Management authority to restrict gillnet mesh size to 4 ½" maximum allowed the ability to open pink salmon directed fishing periods.
-Moses Point S.D. periods length reduced to half the standard length.
- 1985 -Commercial seasons to be opened by Emergency order between June 8 and June 20 and close by Regulation on August 31.
-Moses Point S.D. returned to the standard two 48 hour fishing periods per week schedule.
-Management closed ½ of Moses Point S.D. due to low chum returns.
- 1986 Management closed 4 periods in Moses Point S.D. due to low chum returns.
- 1987 Management closed 5 periods in Moses Point S.D. due to low chum returns.
- 1988 -Management authority to restrict gillnet mesh size to 6" maximum allowed the ability to direct the fishery toward a target species.
-Management restricted the Moses Point S.D. to pink gear only and closed fishing periods to protect the weak chum return.
- 1989 Management reduced period length in the Golovin S.D. and closed the Moses Point S.D. during most of the chum run to protect the weak return.
- 1990 Moses Point S.D. restricted half the season to pink gear during weak chum run.
- 1991 Moses Point S.D. open only one period during weak chum run.
- 1992 -Management Plan for the Golovin S.D. established a maximum harvest level of 10,000 chum salmon to preserve the stock and allowed directed fisheries on other species only if survey data indicated adequate chum escapements would likely be achieved.
-The Kwiniuk River escapement goal was reduced to 19,500 chum past the counting tower.

Table 3. Golovin and Moses Point Subdistrict Management Actions. (page 2 of 2)

- 1992 -The Moses Point Management Plan allowed only one directed chum commercial period during the anticipated weak chum run.
- 1993 -Management restricted the Golovin S.D. to special pink salmon periods with limited gear and harvest areas to avoid high incidental catches of chum which could have terminated the pink salmon fishery since the 10,000 chum cap was in effect again.
-The Moses Point S.D. did not open for chinook or pink salmon due to the chance of potentially harvesting a portion of the depressed chum salmon stocks. Subsistence fishing restrictions were imposed that protected chum salmon on the spawning grounds.
- 1994 -Golovin S.D. continued 10,000 fish chum salmon cap management plan, but no harvest due to no market.
-Moses Point management plan for no directed commercial chum fishery and only allow a pink fishery if adequate chum were available, however no market interest.
- 1995 No change in management plans in either subdistrict with some chum salmon caught during directed pink and coho fisheries.
- 1996 No change in management plans in either subdistrict with some chum salmon caught during directed pink and coho fisheries.
- 1997 No change in management plans in either subdistrict with some chum salmon caught during directed king periods except for the Golovin S.D. chum capacity was liberalized to 15,000 fish prior to July 15.
- 1998 -One commercial king period allowed to offset incidental catches when chum periods were common.
-Pink directed period opened continuously with the buyer scheduling fishing to maximize transport and production. Good coho run attracted limited market.
- 1999 -No commercial periods for any salmon species due to poor returns.
-Sport and subsistence coho closures in Golovin Subdistrict.
- 2000 -Directed pink and coho fisheries land small numbers of chum salmon through use of gear and time restrictions
- 2001 -New chum salmon escapement goals (OEGs) established for Kwiniuk River (11,500 – 23,000) and Tubutuluk River (9,200 – 18,400).
- 2002 -Lack of buyer results in no commercial fishing. Sport and subsistence restrictions for coho salmon in Golovin Subdistrict.
- 2003 - No commercial fishing in either Subdistrict because of poor runs. Sport and subsistence restrictions for chum and coho salmon in Golovin Subdistrict.

FIGURES

Figure 1. Norton Sound commercial salmon fishing districts and subdistricts.

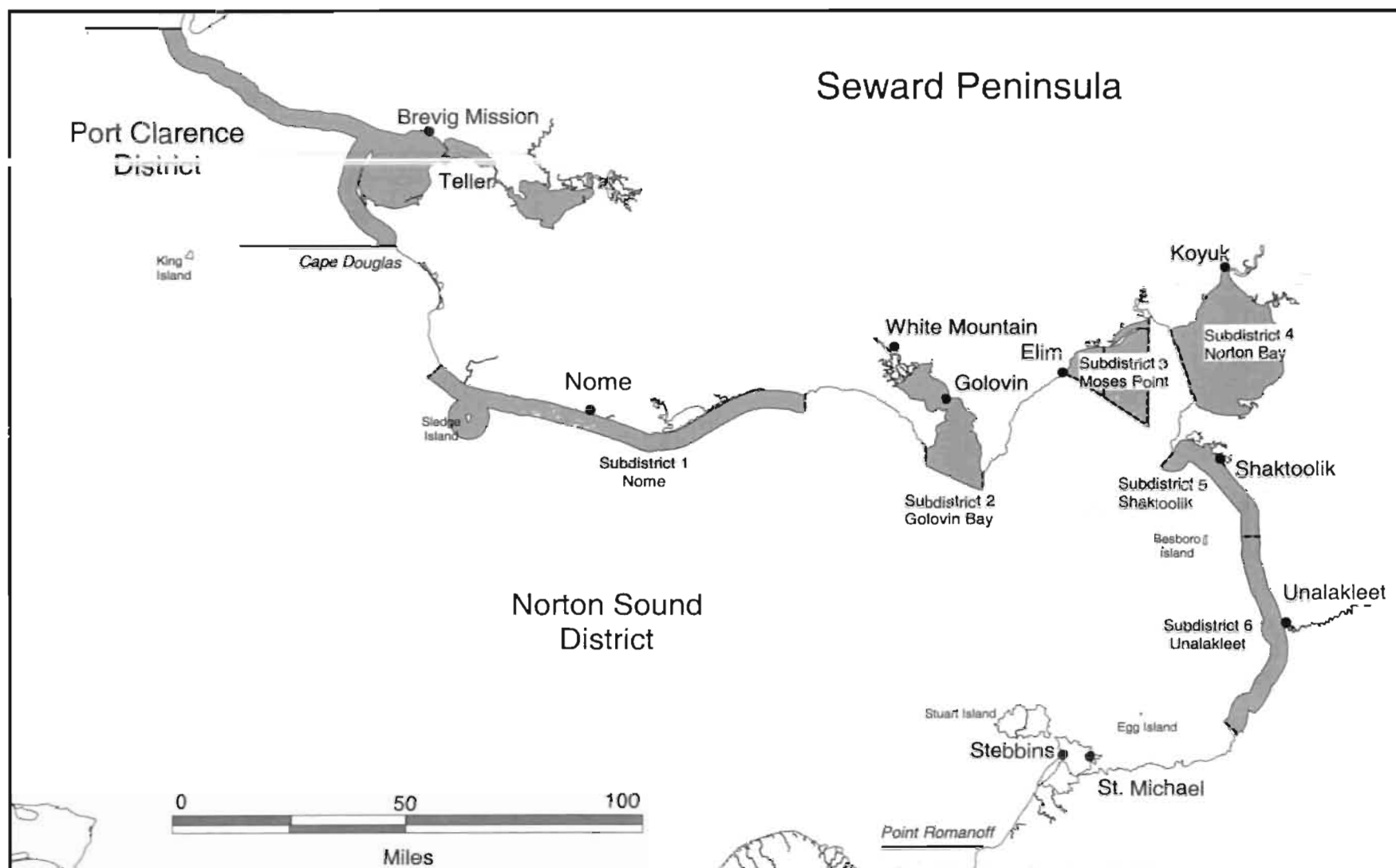


Figure 2. Map of Salmon Rivers in Norton Sound

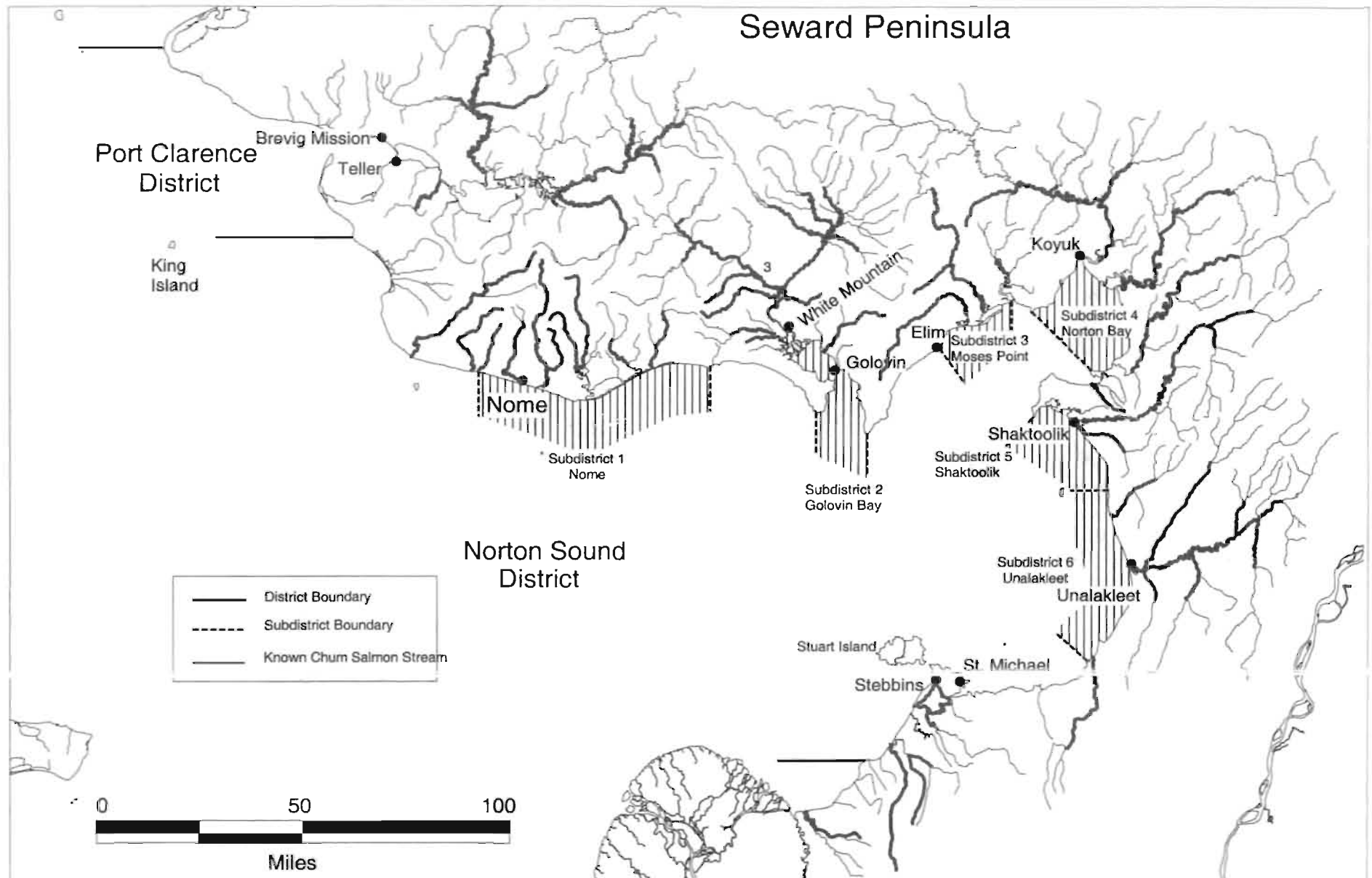


Figure 3. Northern Norton Sound Area Rivers

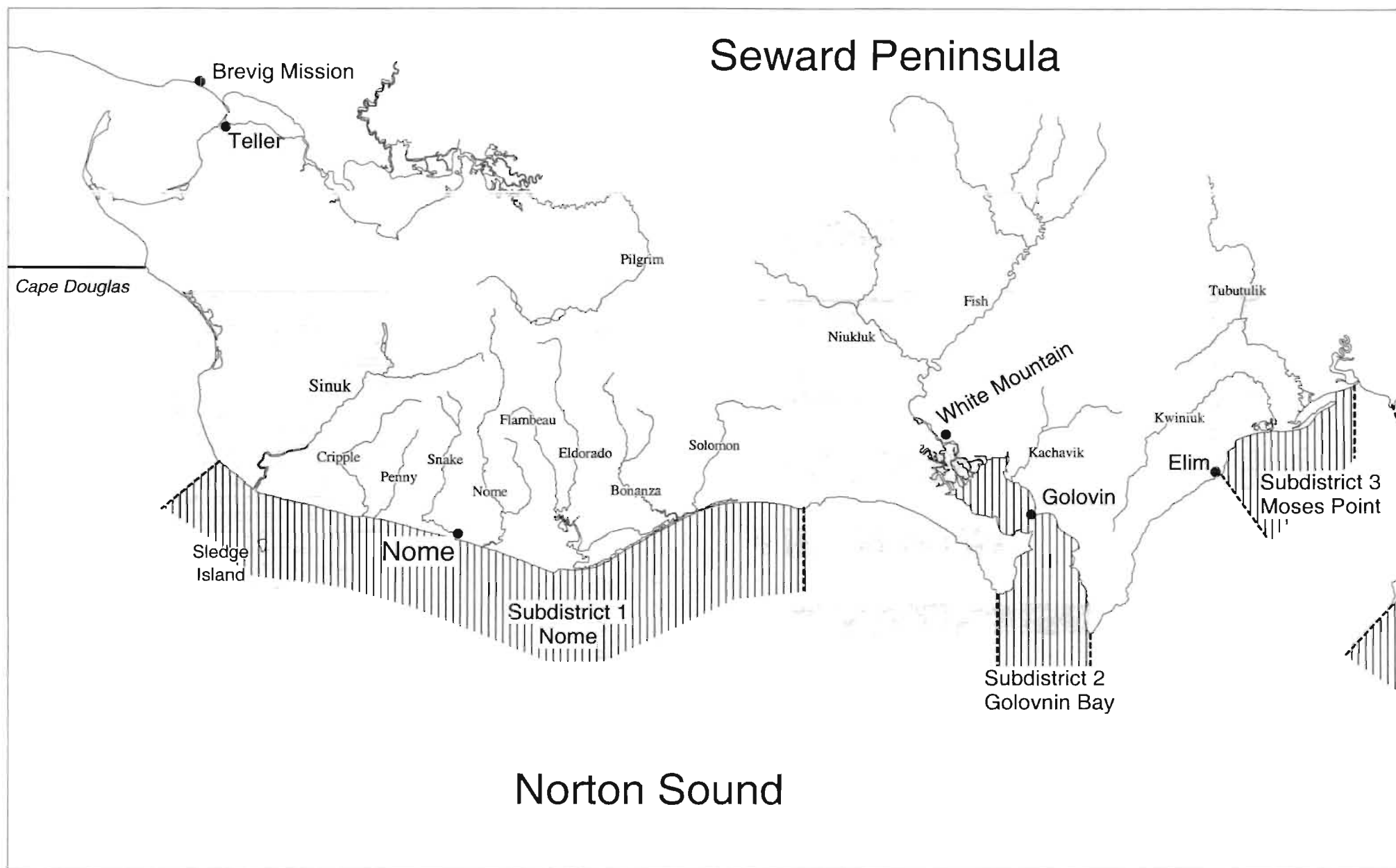


Figure 4. Niukluk River Chum Salmon Escapement.

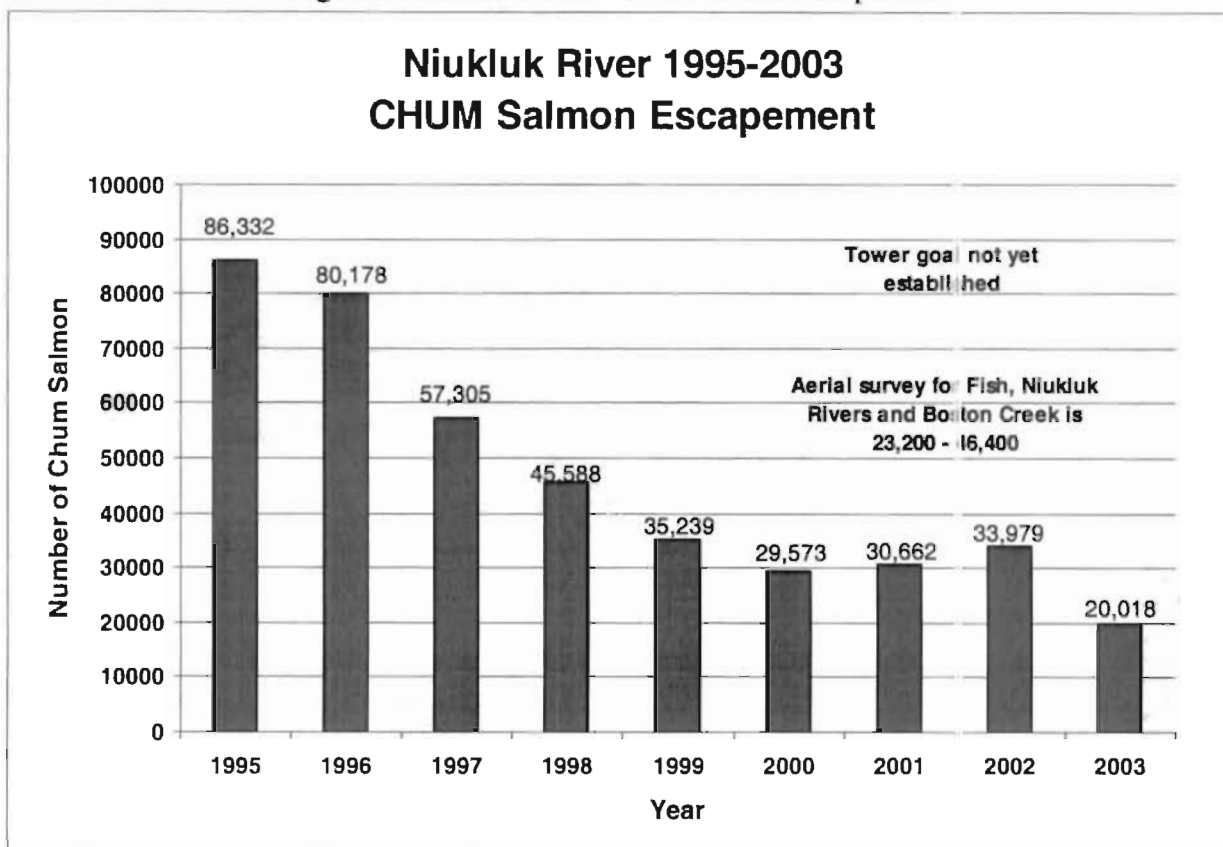
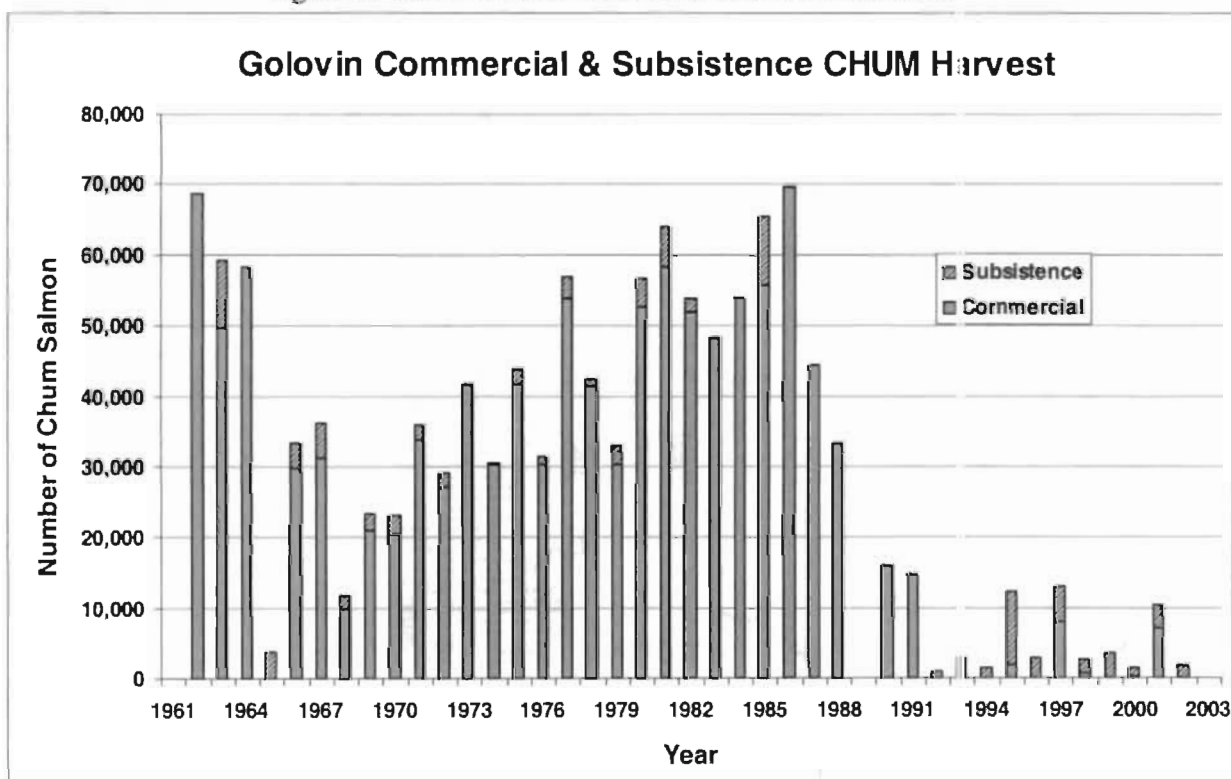


Figure 5. Golovin Subdistrict Chum Salmon Harvests. *



* Subsistence data not available for all years.

Figure 6. Kwiniuk River Chum Salmon Escapement.

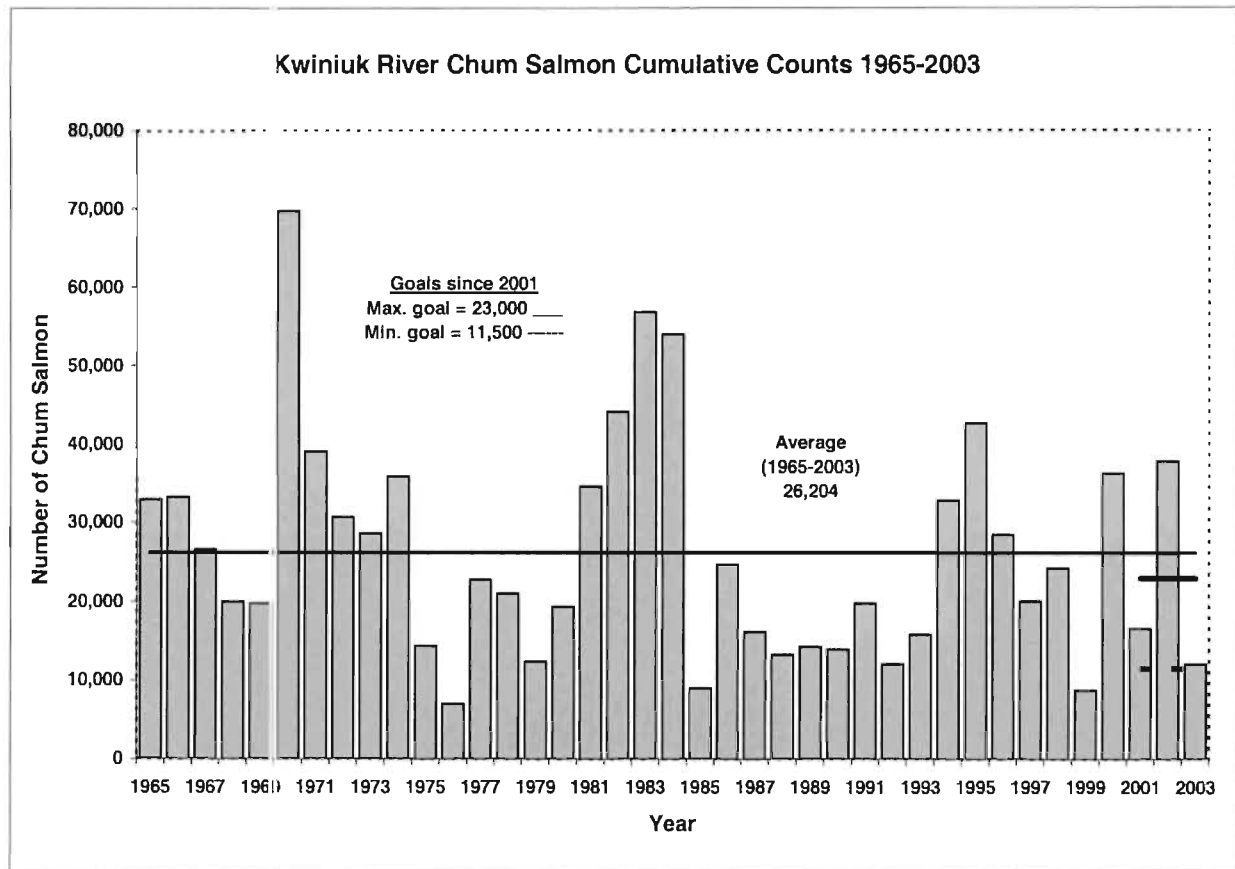
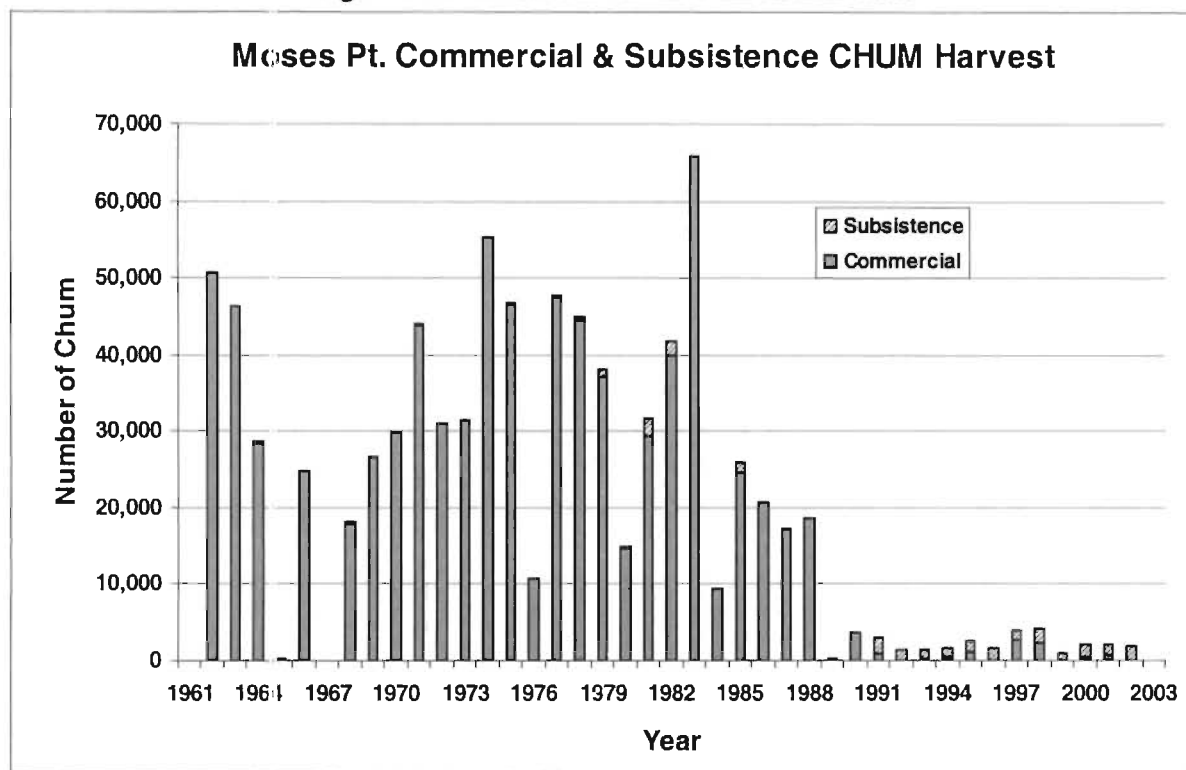


Figure 7. Moses Point Chum Salmon Harvests. *



* Subsistence data not available for all years.